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**THE UNITED STATES PATENT AND TRADEMARK  
OFFICE**

Applicant    Wang,                      Art Unit:    3729  
                  Shin-Jen  
Series No    10/734,912            Examiner: Afzali, Sarang  
Filed            12/09/2003  
Title            Method for manufacturing waterproof zipper and the  
                  device manufactured from the same

Mail Stop Non-Fee Amendment

Honorable Assistant Commissioner for Patents

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Sir:

Responsive to the Official Action date 01/ 23 / 2006, the applicant has to cancel claims 20-26, because these claims were original claims 2~8, which were dependent on original claim 1, after the applicant elected claim 9 as the only one independent claim of the present invention, the dependent claims 2~8 should have been cancelled at the same time. Since the applicant still wanted to preserve the features added to the claim 9, but most of them are the same as other claims following the original claim 9, so the applicant decides to cancel the claims 20-26.

The original specification is amended according to the Examiner's

Since in above discussion, it is apparent that the instant invention is to provide a more environmental friendly solution for the user's reference. Furthermore, as we know that cite prior art may has features of the present invention for comparing the novelty and inventive step of the present invention. It is now believed that the subject Patent Application has been placed in condition for allowance, and such action is respectively requested.

Respectfully submitted.

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Dated: 03/ 29 / 2006

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instruction. Misunderstanding caused by some errors in the original specification, the applicant tries to correct them to facilitate the Examiner to know what they mean. The details of amendment are listed prior to Remarks for the Examiner's reference. Very thanks for the Examiner kindly pointed out what the problems are.

The Examiner mentioned that Norvell (US5,386,616) taught producing a water resistant zipper seems similar to the present invention. Please see the published specification of '616 column 4 lines 36~48, "a gap between the stringer tapes when closed about 0.5mm or less...should be coated with a durable water repellency finish...with a PTFE coating." therefore, claims 5,6,10,15 of '616 based on the description disclosed above, mainly claimed a layer of "polytetrafluoroethylene" (PTFE) to assist in repelling water etc. such PTFE, or Teflon of DuPont (encl. 1), it was endangered and lethal to some experimental pet animals. Whereas in the present invention, "di-thermal liquid bridging polyester urinate resin (i.e. PU gel) mixed with bridging agent" (please see original specification page 7 line 10) was introduced and it could also be described as "PU gel includes PU adhesive and solvent" (please see page 7 line 19), through which, the present invention is different from the methods by applying repellant PTFE or Teflon of the cited '616. And, please also refer to column 3 lines 68 of '616 "terms slide fastener and zipper are used interchangeably".

In the present invention, the applicant cited TW094,285, TW126,351, TW503,715, US6,105,214, and US6,427,294. According to the abstracts of these cited documents, slide fastener and zipper are used interchangeably, while stringer tapes and fastener tapes are used interchangeably, and gripper elements, fastener elements are used

interchangeably. For example, such terms as “slide fastener, fastener tape, fastener elements” are used throughout the published specification of '294. Therefore, it is understood that the terms as mentioned above, though they are not the same as the terms used in the present invention, but they could have the same meaning.

As the Examiner was concerned, the antecedent basis of claim 9 “the fastener strip”, “the fastener strips” and “the two fastener strips”, which is substantially identical to the terms “stringer tape, fastener tape” used interchangeably in the cited documents by the applicant as mentioned above. The fastener strips in the present invention was designated numerals (11,12) and “Each fastener strip has a front surface and a back surface. An inner side of the front surface of each fastener strip (11,12) has a cord thread (13,14) protruded from the surface thereof. The chains (15, 16) are mounted along the cored threads (13,14) respectively. The cord threads (13,14) are fixed to the fastener strips (11,12), respectively. Two chains are engaged by a coupling slider.” can be seen on the original specification page 6 lines 11~17 as description about Fig. 1. The same fastener strips and numerals (11,12) then are used throughout the original specification.

In US6,105,214, please refer to Fig. 1, PU film first applied to the surface of the stringer tape and then PU adhesives can be added to the PU film, it seems that the PU combination were “piled up” on the stringer tapes, because an opposed face (20) was depicted clearly between the film or layer (26) and the stringer tapes (14, 16), and in '214 col.6 lines 7 and 27, “additional layers of PU” or “film (26) as a multiplayer structure” are also attributed to the feature as PU adhesives added to the PU film, as a result, the breadth of the water resistant layer was up to 5 mils (approximately 13 mm), whereas a

gap between the squared faces (52,54) was less than 0.5mm. In other words, the breadth of PU film “positioned outward” is increased to 26 times of the gap, otherwise, it may reduce what “water resistant layer” “positioned outward” effect. But in '214 published specification col. 4 line 32 “PU surface positioned outwardly...without structural failure of the water resistant layer” was emphasized, it resulted from a PU layer hardness 90 PTPU and it was appreciated a slip agent incorporating into it as an additional layer (please see col. 6, lines 53, 60). In '214 col.7 lines 3 and 10, reiterated that slip agent and the like may be one of the fillers added into the PU layer, and aromatic polyamide (aramid) yarn and the like may be used as the substrate. As known, aramid yarn can be used instead of asbestos (encl. 2), and talc can be added to the PU as an ideal slip agent, talc may contain carcinogenic asbestos fibers (encl. 3). Furthermore, according to published specification of '214 page 4 line 60, it treated with “water repellent treatment as fluoro carbon treatment” to the “non-coated surface (18) of stringer tapes (14,16)”. But fluoro carbon or DuPont's Teflon are known as “ozone depleting substances”. (encl. 4)

Either slip agent or fluoro carbon is not necessitated by the present invention. Therefore, in the present invention, applying PU film to the surface of PU adhesive already permeated into the back of the fastener strips, can be understood as more “environmental friendly” than the cited documents from following words, such as “PU gel pressed into the polyester fibers...the capillary is helpful to the addition of the gel by pressing without increasing the thickness of the fastener strips (11,12)” (please see the original specification page 7 lines 23-25) “in drying step...the solvent of the PU gel (37)

vaporizes.” (please see page 8 line 2-3) “PU film (51) is tightly adhered to the PU gel (37) at the backside of the fastener strips, as shown in Fig. 6B”. (please see page 8 lines 28-29) even “anti-hardening agent” can be added into the film (51). (please see page 9 line 10). As mentioned above, in the present invention a PU film added on the PU gel already permeated into the polyester fibers is neither to employ a fluoro carbon (or Teflon) treatment on the non-coated surface of stringer tape nor to apply a slip agent or talc incorporated into the hardness 90 PTPU PU layer. Therefore, this way of PU film combined to PU gel is better and more environmental friendly than the cited documents such as '214, or '616.

In US2,768,922, from col. 2 line 69 to col. 3 line 2, it described that “the heat and pressure cause the film to flow into the interstices of the porous cotton tape but it cannot flow into the impervious paper strip (27)”... “Cooling solidifies the thermoplastic (i.e. vinyl resin) film which then adhered to the tape more than to the paper (impervious paper strip (27)).”

The latter is different from claim 32 of cited US6,579,403 “thermally quenching the molten curable hot melt adhesive to its initial non-tacky, solid phase;” Whereas, in the present invention, original specification page 10 lines 21-24: “The unglued zipper (10') is preheated in temperature 70° C~120° C...more suitable to be adhered to the PU gel...heated unglued nylon zipper (10) has a preferred adhesion and coating effect to the PU gel (37),” it is different from the cited documents.

It can also be known from the cited US6,579,403 published specification col. 4 line 35~37 “Fabric thread count and size also can vary...so low as to provide large interstitial void” or as Fig. 11

of '403 FIG. 11 illustrates (col. 13 lines 53-55: a shaped deposit of adhesive at the extreme edge of a textile substrate, col. 7 line 61-67: The adhesive should have suitable flow properties to form a strong adhesive bead, provide for application of the adhesive to the fabric surface, and prevent wet out through the fabric, while providing penetration into the fabric structure. This can favor mechanical envelopment by the adhesive of the fibers of the fabrics to which the adhesive is applied.) shown the adhesive condensed at the end of the fabric thread, without impervious paper, the droplet may separated from the end of the fabric thread. But, both '922 and '403 are different from the crosslinkable adhesive as the present instruction disclosed.

The present invention must reiterate "the capillary is helpful to the addition of the gel by pressing without increasing the thickness of the fastener strips (11,12)" (please see the original specification page 7 lines 23-25) or "di-thermal liquid bridging polyester urinate resin (i.e. PU gel) mixed with bridging agent" (please see original specification page 7 line 10) or "PU gel includes PU adhesive and solvent" (please see page 7 line 19), or "in drying step...the solvent of the PU gel (37) vaporizes." (please see page 8 line 2-3) are different from the cited documents. Since the PU gel is first permeated into the fabric and then the PU film adhered on it.

Please also see the original specification of the present invention page 10 lines 26-28, and page 11, line 1: other adhesive combinable to the PU film (51), such as base material polymer (polyester polyhydric alcohol or acrylic acid polyhydric alcohol, or micro inorganic stuff agent) which is formed by bridging and hardening), thereby it is not confined by PU gel." the capillary attraction of such

adhesive and the solvent in the fabric, before drying and heating, the molecules may be small, after cross-linking or bridging, molecules can become bigger, so they can be kept in the base material.” Such pre-polymer alike solidification under low pressure added with, for example, urethane resin as curing agent can be expected a solidification process different from the cited documents.

And, according to cited '403 col. 1 line 49-50 “Crosslinkable or thermosetting adhesives can be applied to textile products for various purposes.”, under “environmental friendly” consideration, the present invention is to provide an improved crosslinkable way different from the cited documents.

In the original specification of the present invention, from page 11 bottom line to the page 12 line 11: “the inner surface of the PU film (not outer surface) is printed with beautiful pattern (referring to Fig. 12) by screen printing...the convex or concave textures are printed on the inner surface (not outer surface) of the PU film (51) to form textures (513) (referring to Fig. 13)...the waterproof layer is transparent, the pattern or texture is clear and it can be identified easily...the transparent texture (513) can be presented as protrusion texture.” And “The solvent of the inner PU gel can vaporize completely so as not to harm the (human) body. The inner texture or pattern of the waterproof layer can prevent from scraping and have the function of counterfeit-proof.” (please see page 13 lines 8~10) are described about the patterns and textures made inside the PU film can be seen clearly from outside with counterfeit-proof function.

In US 6,676,534 , Huang taught a water tight PU layer formed